

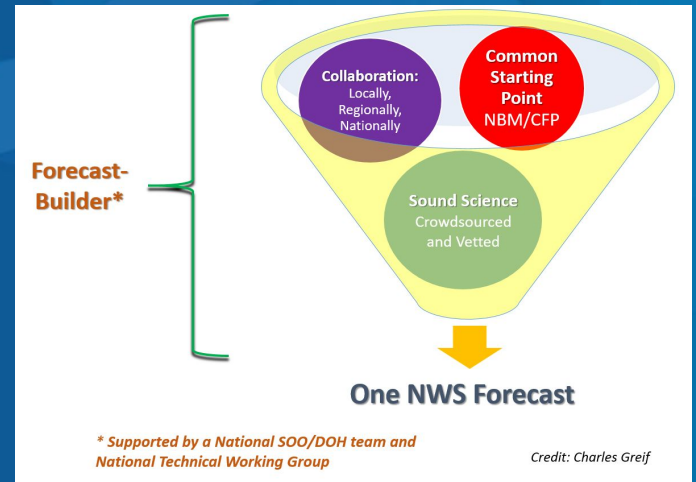


ForecastBuilder

Laying the foundation for IDSS via a consistent, science based process

**DAS in ForecastBuilder
Overview**

adapted from training



<https://vlab.noaa.gov/web/forecastbuilder>

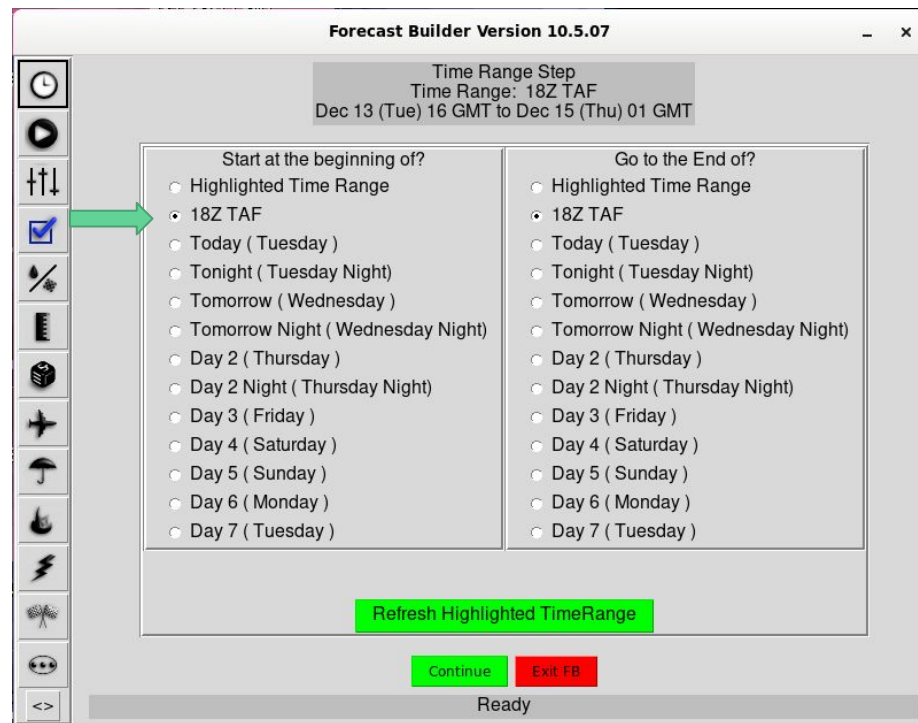
Digital Aviation Services in ForecastBuilder

- ForecastBuilder directly builds DAS into the forecast process
- Benefits:
 - Always ensures the DAS grids are internally consistent with other grids, and vice versa
 - Common workflow which leads to increased consistency
 - Supported by national teams/groups including vetting, technical and training
 - DAS training module: <https://youtu.be/snRiqjkn3RQ>
 - Reduction in needed tools since they are built into the ForecastBuilder program
- News:
 - CaRDS 19-007 discussed requirement for a Common Forecast Management Tool
 - ForecastBuilder has been approved as the solution to CaRDS 19-007 - baselining process to start later in 2023
 - Refinements for DAS in ForecastBuilder possible per collaboration with the National DAS Formatter and Tools team

Quick Overview on the DAS process in ForecastBuilder

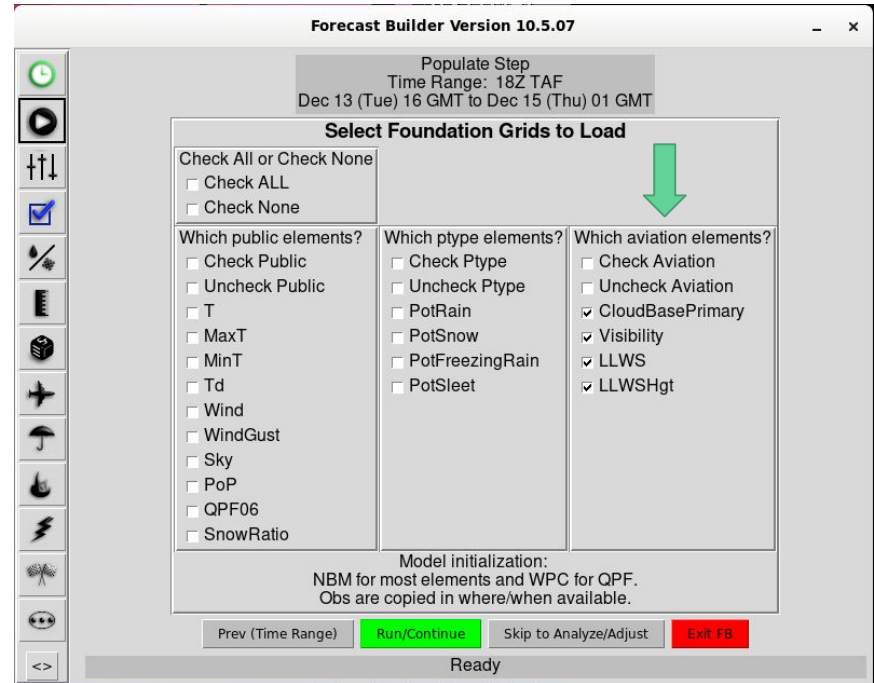
DAS in ForecastBuilder - Step 1

- Choose time range
 - A 3 hour TAF cycle (1 main, 1 AMD) has been built in as an option with a base 30 hour forecast (configurable to be longer)
 - Can see exactly what the Time Range is by looking in the dark grey box near the top of the ForecastBuilder window
 - Choosing a different time range is valid, such as a highlighted range

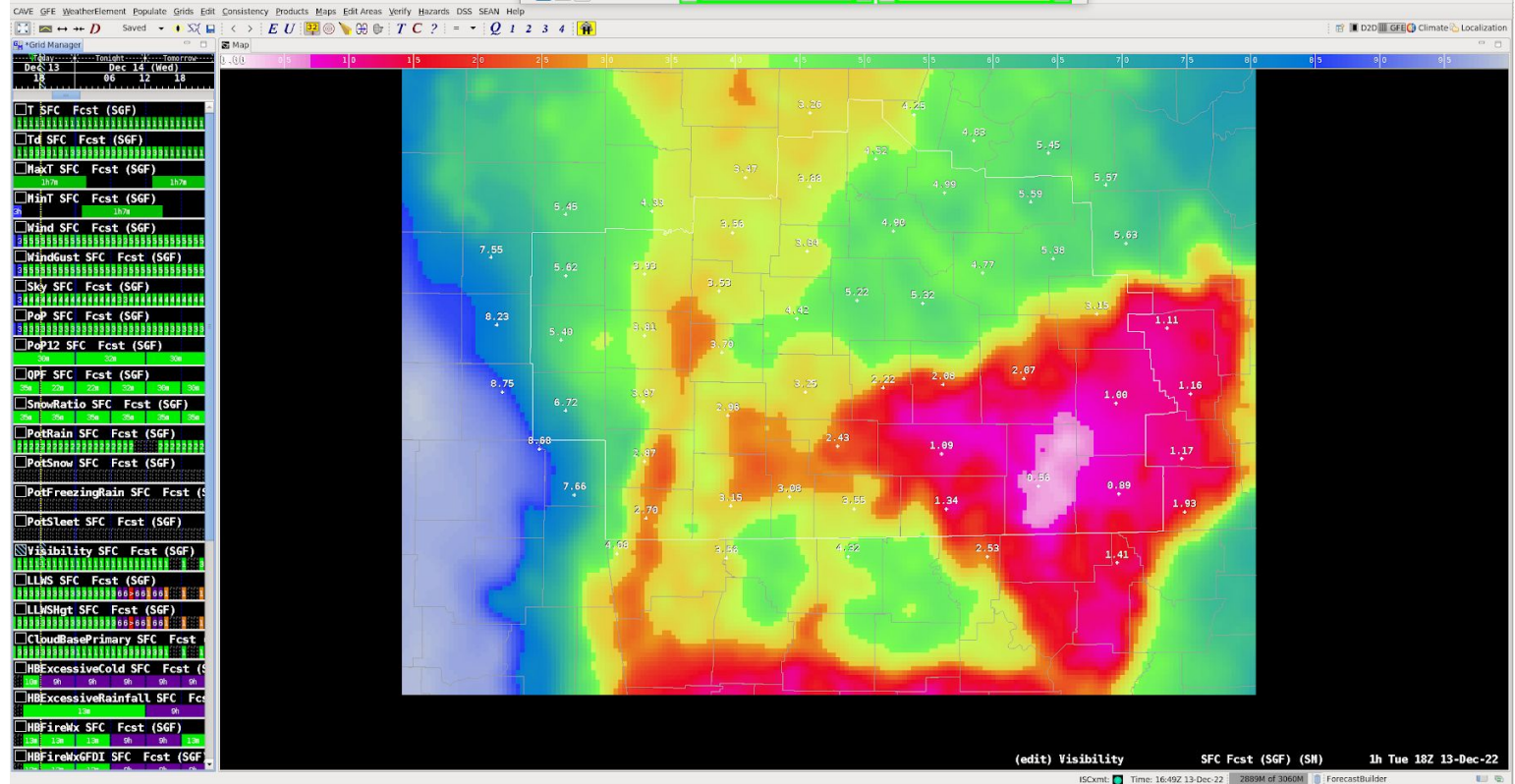


DAS in ForecastBuilder - Step 2

- Choose which forecast elements to populate
 - Aviation elements have their own column - choose which to update - **generally update all at main issuance**
 - Can also update other elements - **strongly consider updating public grids, such as PoP/Wx, wind and sky, as these directly impact TAF**
 - Collaborate with any other forecasters necessary to ensure your TAF and the grids will align - **the formatters are only as good as your grids!**

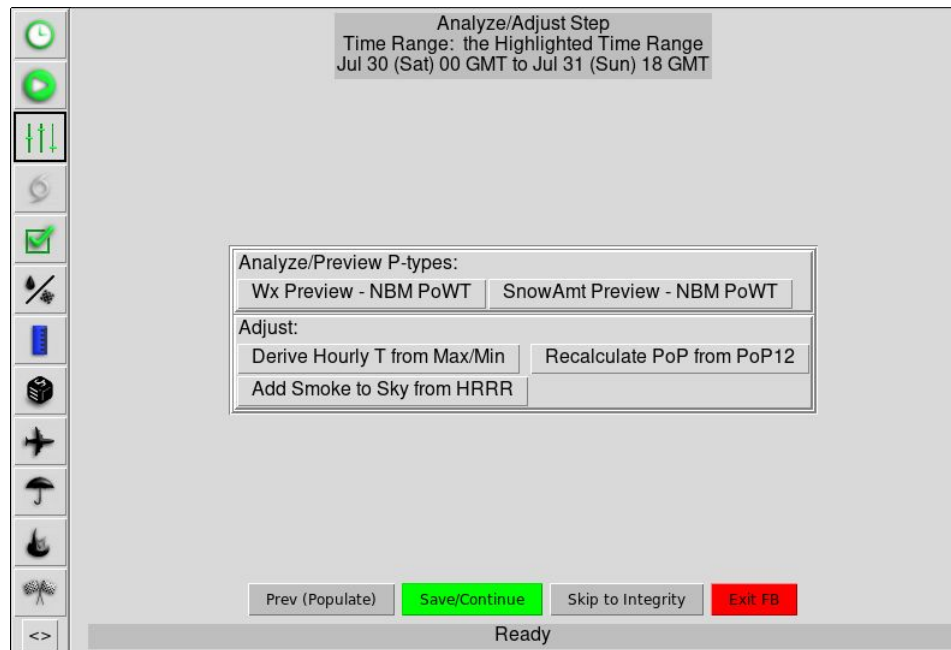


Example Output for Step 2



DAS in ForecastBuilder - Step 3

- Populate then Analyze/Adjust
 - Search for “Targets of Opportunity” when making adjustments
 - Remember that Visibility and the Ceiling grids created from CloudBasePrimary are public grids
 - Used by aviation partners beyond just our TAF sites
 - Visibility can be used by other programs for Wx grids such as fog
 - Our partners can and do see these - and will compare them against the TAF!
 - If you put the work into your grids, you have to put less work into changing the formatter produced TAFs!



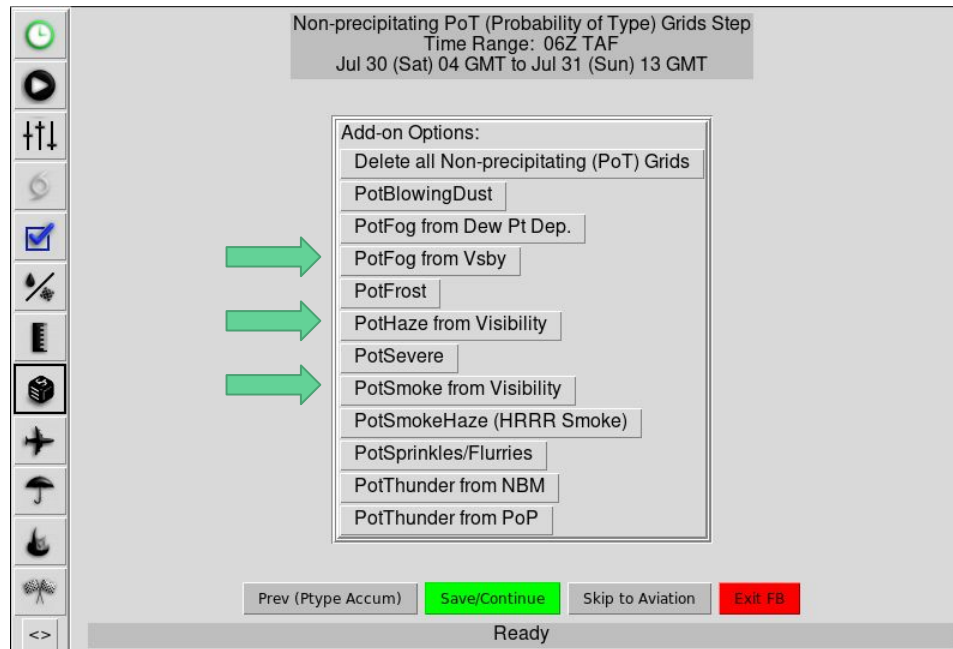
DAS in ForecastBuilder - Step 4

- Integrity/Precip Types Step
 - See Knobology Training for more detailed information on each step
 - Remember that Wx grids will have an impact on your formatters, including TEMPO and PROB30 generation

The screenshot displays the 'Precip Types Step' configuration window in ForecastBuilder. The window title is 'Precip Types Step' and it shows the 'Time Range: the Highlighted Time Range' as 'Jul 30 (Sat) 00 GMT to Jul 31 (Sun) 18 GMT'. The main panel is titled 'Create/Edit Unconditional Precipitating Weather Types' and is divided into three sections: 'Create', 'Edit', and 'Consistency'. The 'Create' section includes an 'Init WxTypes' button, checkboxes for 'T', 'T+', 'R', and 'L', a 'Delete WxTypes' button, and 'Initialize Options' with 'Use Custom (GFE)' checked and 'Edit Area' and 'Time Range' buttons. The 'Edit' section has an 'Edit' button. The 'Consistency' section has 'Consistency' and 'Wx Preview' buttons. A 'Fix Tools' section is also visible. At the bottom, there are buttons for 'Prev (Integrity)', 'Save/Continue', 'Skip to Ptype Accum', and 'Exit FB'. The status bar at the bottom indicates 'Ready'.

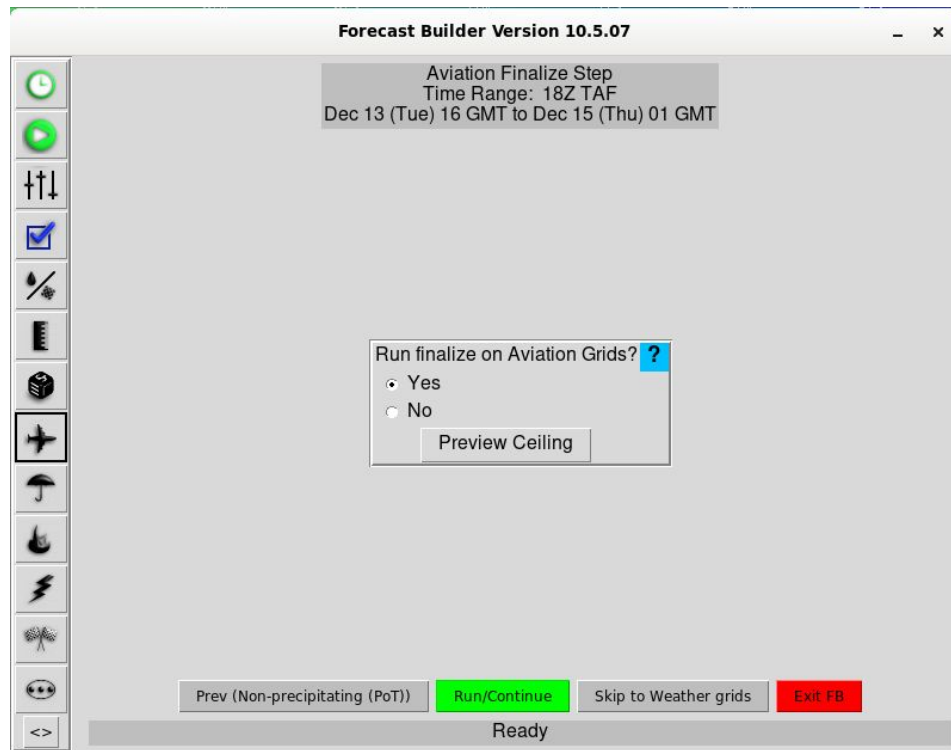
DAS in ForecastBuilder - Step 5

- Non-Precip Probability of Type Grid Step
 - Many of the grid types here can be impactful to aviation - do not forget them!
 - **Important: PotFog and other several other “obstructions” can be derived directly from your visibility grids.**
 - **Wx Types and Visibility will be checked against one another in the finalize step, and visibility will be changed to match if they do not match during the finalize step which comes next!**



DAS in ForecastBuilder - Step 6

- Finalize will perform several consistency checks against your Wx types, Visibility, and a few other grids
 - This means that, for instance, if your Wx type grids and Visibility do not match, Visibility will be changed to match!



DAS in ForecastBuilder - Step 6 continued

- When running Aviation Finalize:
 - Ceiling grids will be created where:
 - Sky > 57
 - Several consistency checks will occur across CloudBasePrimary (CBP) and Visibility to ensure alignment with other grids
 - CloudBasePrimary checked against PoPs, Sky and Visibility and changed to match
 - Visibility checked against Sky and Wx/Pot grids for “obstructions” such as Fog, Haze, Smoke, and numerous others

If This is True at a Grid Point:	Change at the Grid Point:
$15 \leq \text{PoP} < 25$ and $\text{CBP} > 110$	CBP to 110
$25 \leq \text{PoP} < 55$ and $\text{CBP} > 100$	CBP to 100
$\text{PoP} \geq 55$ and $\text{CBP} > 90$	CBP to 90
$\text{Sky} \leq 87.5$, $\text{Vsby} > 7$, and $\text{CBP} < 1$	CBP to 1

IMPORTANT: If there is no “obstruction” or if PoP < 55 at a grid point, visibility will be raised to a minimum of 7!

DAS in ForecastBuilder - Step 6 continued

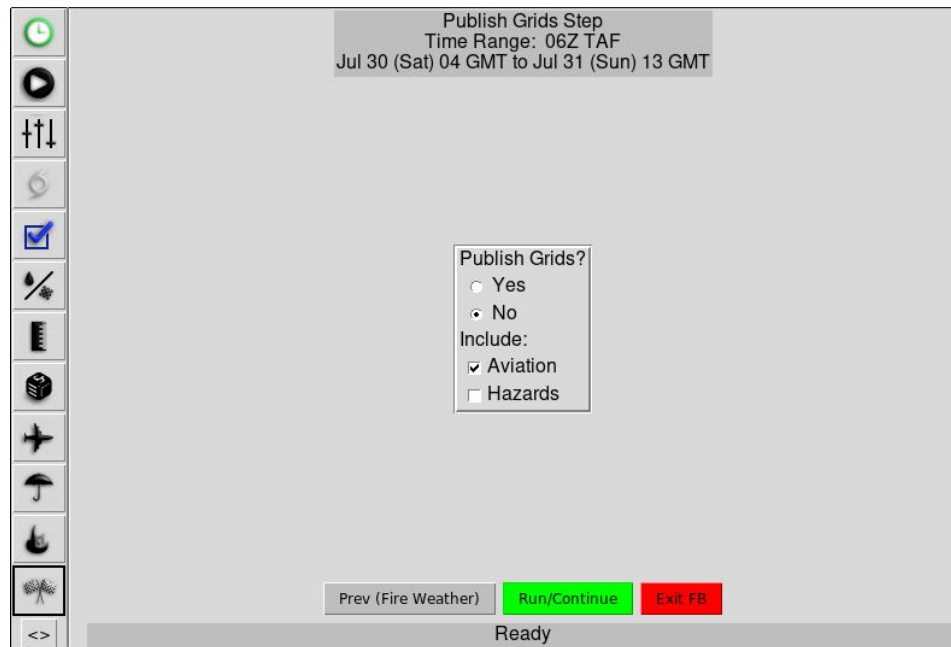
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If This is True at a Grid Point:	Change at the Grid Point:
PotBlowingSnow \geq 60 and Vsby > 0.5	Vsby = 0.5
PotBlowingSnow \geq 80 and Vsby > 0.25	Vsby = 0.25
Vsby \leq 0.5 and Sky < 90	Sky = 90
PotFog/FrzingFog \geq 20 and Vsby > 6	Vsby = 6
PotHaze > 0 and Vsby > 5	Vsby = 5

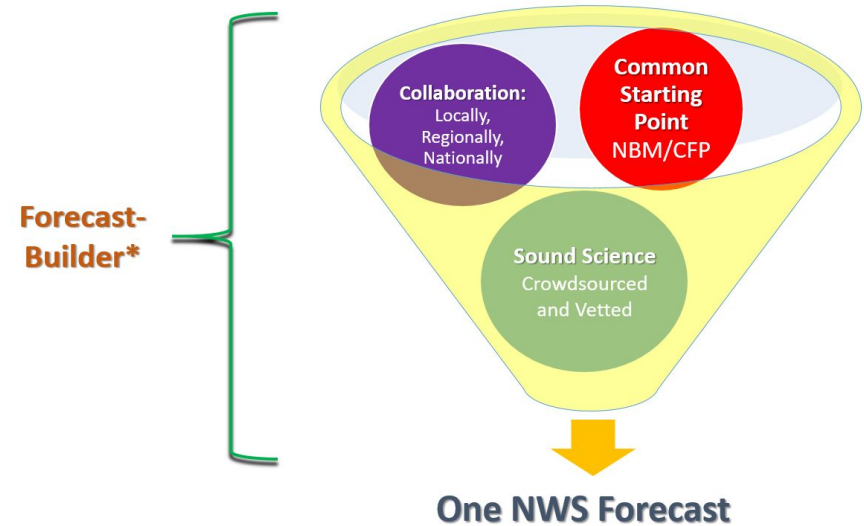
DAS in ForecastBuilder - Step 7

- After running through the Wx step (not shown) you can now publish if you so choose
 - Be sure that Aviation is checked to be included - the TAF formatter will only pull from published grids



Questions or Feedback

- **ForecastBuilder Virtual Lab site:** <https://vlab.noaa.gov/web/forecastbuilder>
- **E-mail:** nws.forecastbuilder@noaa.gov



** Supported by a National SOO/DOH team and
National Technical Working Group*

Credit: Charles Greif